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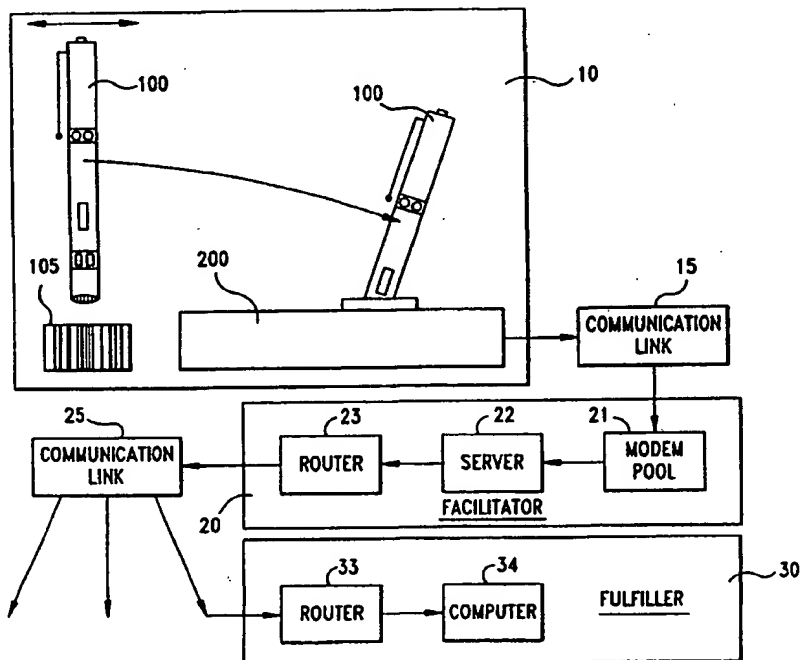
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(54) Title: SYSTEM AND METHOD FOR REMOTE TRANSACTIONS BETWEEN A CUSTOMER AND VENDORS

(57) Abstract

Transactions are facilitated by the use of automation and communications. Transactions are partly defined by the use of a data capture unit (100) allowing a user to simply and easily define a subject of a transaction. The data capture unit (100) may be a bar code reader which, when swept across a selected bar coded field (105) will capture and store the selected data. The captured data and associated unit identification information is transmitted to a remote processing center or facilitator unit (20) in a semi-automated fashion by docking the data capture unit (100) with a data forwarding unit (200). At the remote processing center (20) the identification information allows authentication and also is used as a pointer to additional important information on the user. The additional information is combined with at least part of the data transmitted to the remote processing center (20) in order to complete the definition of a particular transaction.



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## **SYSTEM AND METHOD FOR REMOTE TRANSACTIONS BETWEEN A CUSTOMER AND VENDORS**

### **DESCRIPTION**

#### **Technical Field**

5           The invention relates to facilitating commerce through the use of modern communications.

#### **Related Application**

          This application is a continuation-in-part of prior copending application S.N. 60/057,499 filed September 4, 1997.

#### **Background of Invention**

10           Many commercial transactions fall into the category of retailing. Historically, retailing in this country began with single stores in single locations. Improvements resulted in a single branded store in multiple locations, i.e. chain stores. Evolution brought "shopping malls", i.e. multiple stores in single locations.

15           Here emphasis is placed on variety and choices at a convenient location. This led to the concept of a "store within a store" - in order to provide quality brand names and to increase retail traffic, many of the large retailers experimented with the concept of renting space to other retailers. In addition, another advance was the "discount warehouse". Here, stores focused on variety and "every day low prices",

20           discounted prices due to large volume purchases. In the larger discount warehouses, the retailer has often requested the manufacturer to manage its own inventory instead of the retailer buying and managing the risk of this inventory. To

5 permit such inventory management, the manufacturer's computer system is  
networked to the retailer's computer system. The discount warehouse led to the  
specialized discount warehouse. Parallel to these developments came the advent of  
direct catalog marketers which sell a variety of products and services directly to  
end users through catalogs. In the early 1990's TV shopping networks on cable  
channels appeared. Finally companies have offered on-line shopping malls. In  
parallel with these changes, direct-to-home retailing has become a necessity in  
several industries because of competition and the requirement for lower costs of  
distribution and higher margins. In the personal computer industry, for example,  
10 several companies have been very successful with direct-to-home retailing. In other  
industries, the same type of transaction is gaining ground, particularly books and  
compact discs.

15 Aside from price and competition driving these changes, it should also be  
recognized that consumers are getting older and have many more demands on their  
time. In particular, members of the large segment of dual income households value  
their time more than do other segments and thus these consumers both have less  
time to shop and are less willing to spend time on shopping. These consumers  
prefer not to go to shopping malls but to do their shopping, especially for repetitive  
purchases and other mundane shopping, in the comfort of their homes. This does  
20 not mean that these consumers will never go to a mall. Shopping for frequently-  
used non-perishable goods and services will be done using catalogs while fun  
shopping or entertainment shopping for special gifts and one-of-a-kind articles will  
continue to be done in shopping malls.

25 In addition, changes in telecommunications led to experiments using the  
Internet and other networking technologies. Initially, business transferred some  
administrative functions to the new communications but once experience showed the  
value of this new technology, entities started to use the new technologies for

mission critical applications such as management of 401K portfolios, taking orders from customers, providing orders to suppliers and interactive customer support programs. Many companies have experimented with the idea of offering shopping malls on the Web for consumers and businesses. However, on-line shopping malls for consumers have been successful only in niche markets and with significant limitations with respect to significant expansion. Indeed, brand name companies have closed on-line shopping malls for lack of traffic.

It is apparent by noting that sales from catalogs have become the highest growth segment within the retailing business while shopping mall sales are declining, that there is a need for a new transaction system. It is also of note that the Internet has increasingly become reliable in commercial applications although shopping on the Internet still requires a complex assortment of equipment and software (typically a personal computer, a high speed modem, a telephone line, a browser and some electronic payment software). These systems are expensive, their use is time-consuming and a fairly high level of computer literacy is required, all of which are not commonly available. In addition, it is not intuitive for a member of an average household to get on-line with a personal computer to order goods and services. It is more intuitive for a household member to check advertising sections of local newspapers, and browse catalogs, as opposed to accessing the Web page of a local grocery store or mail order company. In short, many more consumers are "reading" savvy than "computer" savvy. They continue to make shopping decisions from reading or browsing local and/or national newspapers, Yellow Pages, catalogs, magazines and the like. While a variety of standards are discussed for Internet and other telecommunications applications and particular electronic transactions, there is still much confusion in the marketplace especially when end users are involved, between the diverse requirements of credit card companies, banks, merchants, software companies and regulatory agencies.

While the foregoing has related to retailing, many of the same problems are exhibited at other levels of the chain of commerce. The invention therefore has applicability at all levels of commerce, where one party has the objective of selling goods or services and another party has the objective of buying goods or services.

5 All of the foregoing makes it apparent that there is a need for application of the new technologies, but the particular way in which these new technologies should be applied has not surfaced.

### Summary of Invention

10 In order to overcome the foregoing problems and difficulties, the invention provides a system and method to collect the combined transaction information which may be needed to complete a transaction, and do so in an intuitive way and non-intrusive way. In particular, the invention enables use to be made of pre-existing data, i.e. printed (or the like) data appearing in advertisements, catalogs, etc. In other words the user has, in effect, a library or catalog which defines or identifies  
15 many potential subjects of commerce. The library or catalog (such as advertisements in a magazine, newspaper or the like) is pre-existing in the sense that it is created prior to the use by the user. The user merely selects some portion of this pre-existing data to initiate a transaction by defining its subject.

20 More particularly, in respect of one aspect, the invention allows a user to apply a simple-to-use data capture unit to pre-existing data to capture that data. Typically, the captured data may relate to some desired goods or services - the data however, since it does not identify the purchaser, is inadequate to completely define a transaction. When the user has captured the desired data, the data capture unit can be joined or coupled to any one of a number of available interfaces to link the  
25 captured data to an intermediary or facilitator. The intermediary or facilitator stores

additional data which is necessary to define a transaction. The interface provides a data forwarding function or network access function linking the data capture unit to the facilitator or intermediary. The facilitator or intermediary then may accept the captured data and adds to it additional pertinent data to provide the data necessary to complete a transaction. The facilitator or intermediary may then forward the combined data to a fulfilling entity to complete the transaction.

Thus, in respect of one aspect, the invention provides a system to provide combined transaction information from a user and a facilitator comprising:

portable data capture means to capture user-selected data defining a particular transaction,

data forwarding means responsive to the data capture means for acquiring data from the data capture means and for forwarding the acquired data, and

facilitator means responsive to the forwarded data for associating pre-stored data with the forwarded data to create the combined transaction information.

The system may also include a fulfiller and/or intermediary which responds to the combined data in order to complete the transaction.

The invention allows the capture of orders at the point of intent and transparently route the orders to participating merchants. A system according to one embodiment of the invention comprises a data capture unit which may be in the form of a pen that is used to scan coded information (e.g., bar codes) in any print medium. This data capture unit, in conjunction with a data forwarding or docking unit, automatically dials up and delivers purchase requests to a facilitator or remote transaction center through a suitable communication resource. Software at the

facilitator matches the requests with a customer profile, such as credit card number, home address, etc. The facilitator can then send the purchase requests to the merchant's location (or agent) using standard dialup or dedicated circuits, satellite communications or the Internet. While the communications can use any desired format, there are advantages which flow from using Internet Protocol (IP) for the transmission from the data forwarding unit to the facilitator. For one thing, if IP format is used, then the facilitator may simply retransmit in the same format over the Internet. Merchants process the orders and deliver goods or services directly to the user/consumer. In addition to purchase requests, the invention can be adapted to process request for information, or a request for call back, implement bill paying as well as other peripheral and supplemental transactions as will be described. Users are able to carry the data capture unit anywhere, anytime around the world.

Data forwarding units or docking stations can be made available in public places such as hotel rooms, airline clubs, libraries etc. In addition, as will be described, while the data capture unit is personalized, the data forwarding unit or docking station is not. As a result a data forwarding unit can be used by any data capture unit without adverse impact on the transaction.

A unique identity number is stored inside the data capture unit. Sensitive and confidential information such as the user's credit card number is stored in a secure server at the facilitator. The system facilitates transactions between the user and merchants/vendors. For the user, there is no need to get up, pick up the phone to call a toll free number, give out the credit card information every time, or talk to a sales person. Also, there is no need to incur the significant cost of personal computer ownership, learn computer systems or waste time browsing the web. Benefits also extend to vendors. Vendors are able to capture the consumer at the "point of intent" versus waiting for the sale at the "point of sale". Therefore for the vendors the system according to the invention complements available distribution



channels and enhances the power of advertising. In addition, costs related to setting up and managing call centers are reduced, and errors in processing orders are eliminated. Furthermore, by tracing which advertising medium generated the captured data, vendors are able to clearly determine the effectiveness of an advertisement, enabling them to optimize their merchandising expenditures.

In respect of one particular aspect of the invention, the data capture means may comprise a bar code scanner with which a user can capture bar code information appearing in a catalog, advertisement, magazine or the like. The bar code scanner, in addition to storing the scanned or captured data, also stores identification information, i.e. an electronic serial number (ESN). It is an advantage that the scanner is portable. In order to communicate the captured data to the intermediary or facilitator, a data forwarding means/docking station or network access unit is used. The data capture unit is coupled to the docking station to transfer the stored data over an existing communications system such as the telephone network, to a facilitator in the form of a remote processing system. The remote processing system is addressed by the data forwarding unit and accepts the data forwarded thereto. This data in part, particularly the identification information, is useful as a pointer to identify additional data which can be combined with the user-captured data. The intermediary or facilitator may also validate the transferred data, particularly based on the identification information. Having been processed (validated and combined), the combined data can then be forwarded over another communications system such as the Worldwide Web to a fulfillment entity or a selected fulfillment entity in order to complete the transaction.

Thus, in respect of the system aspect of the invention, useful functions are performed by a data capture unit, a data forwarding unit, a facilitator and fulfiller or merchant.

The data capture unit is used by a user to capture data partially defining a transaction after that data is selected by the user. In a purchase transaction, the user may select data defining the subject of a purchase. In one embodiment the data capture unit is a pen like bar code scanner which can be used to read and record bar codes appearing in some medium, such as a print medium, reviewed by the user. In other embodiments the bar code scanner may take on forms other than the form of a pen. In still other embodiments the captured data may be in a medium other than a print medium, such as television, either cable or broadcast. In other embodiments the data may be in formats other than bar coded.

The data forwarding unit or docking station is responsible for responding to the presence of a data capture unit, when docked, to initiate a communication session over a communication link, with the facilitator or remote processing center. The purpose of the session is to transfer data from the data capture unit to the facilitator. To perform this function the data forwarding unit may include a dial up modem programmed to connect over the PSTN either with the facilitator or a node of a network through which the facilitator can be reached. The node may be a resource of an Internet Service Provider (ISP) and the network used to reach the facilitator may be the Internet or other similar network. The modem may be wired or wireless.

The facilitator is required for several functions. In the first place, in one embodiment and in the case of a purchase transaction, the captured data defines the subject of the proposed transaction but not the purchaser. Rather the transmitted data may, in addition, define or identify the data capture unit. Thus one function of the facilitator is to use the identification of the data capture unit to access additional data identifying the user and necessary to the transaction. Another function of the facilitator is to authenticate or verify that the data capture unit identified in the transmitted data is an authorized unit, that it has been assigned for use and has not

been reported as missing or stolen. The facilitator will then combine the captured data and the additional data so that the transaction is more completely defined. In the event that the facilitator does not also perform the function of fulfilling the proposed transaction, the facilitator, from the captured data, identifies the entity who will fulfill the transaction, and the transaction data is transmitted thereto.

The communication from the facilitator to the fulfilling party may embody a secure or encrypted transmission over a suitable communication resource such as the Internet.

The fulfilling party is responsible for accepting the transaction data and then fulfilling the transaction; in the case of a purchase request, this involves forwarding to the identified user the subject of the transaction.

Supplemental or ancillary to the completion of the transaction is the framework by which the parts of the system are put into place and initialized. In other words, data capture units have to be distributed and accompanying that process, the user profiles must be registered to create the facilitator's data base. Additionally, in order for the data capture units to function as intended, steps need to be taken to create and distribute the media carrying the data for capture. To accomplish this merchants must register the goods/services to be offered, codes need to be assigned and the media carrying the appropriate codes must be created and distributed.

Aside from applicability to purchase requests, the invention can also be used to facilitate requests for bill paying, information, merchandise return, polling and coupon management. In addition, the invention allows capture of vastly more effective peripheral information. By adding the ability to capture the time of the user scanning of a code and transmitting that piece of data along with the other

transaction information, the facilitator or the merchant can now determine, for each transaction mediated by the invention, at just what time of day the user initiated the transaction. Likewise, by adding advertisement (or media) identification to the scannable code, the merchant (or facilitator) can now correlate transactions with the advertisement or media responsible for the transaction.

### Brief Description of the Drawings

The present invention will now be further described in the following portions of this specification when taken in conjunction with the attached drawings in which like reference characters identify identical apparatus and in which:

Fig. 1 is an overall block diagram identifying significant components of the invention;

Fig. 2 is a flow chart of various steps which are implemented in accordance with an aspect of the invention;

Fig. 3 is a side view and block diagram of the data capture unit, one element of the system of the present invention;

Fig. 4 is a block diagram of a data forwarding unit or docking station which is another element of the system of the present invention;

Fig. 5 schematically illustrates a stream of data which may emanate from a data capture unit and be transmitted to a facilitator or remote transaction center; and

Fig. 6 is a more detailed block diagram of a preferred embodiment of the facilitator or remote processing center.

### Detailed Description of Preferred Embodiments

Fig. 1 graphically illustrates the typical components of a system in accordance with the invention. As shown in Fig. 1, there are three main centers of activity, a user region 10, an intermediary region 20 which is occupied by the facilitator and a region 30 which is occupied by the fulfiller. The transaction which is the subject of the activity of the apparatus of Fig. 1 is initiated by a user. One type of transaction is a purchase transaction and it is initiated by the user capturing data identifying the goods or services to be purchased. One example of a data capture device is the bar code scanning pen 100. As will be described, the bar code scanning pen 100 is portable and can be applied to capture pre-existing data in the form of a bar code such as exemplary bar code 105. For example printed catalogs, newspaper advertisements and the like may be augmented to include bar coded data identifying offered goods and/or services. It will be appreciated that the offered goods and/or services must be uniquely identified in the bar coded data but that unique identification, depending on the context may require more or less data. If the system is used by only one vendor, less data is required for a particular item than if the system is used by 10 vendors, 100 vendors, etc.

At this point, it is also useful to refer to the flow chart of Fig. 2. As shown in Fig. 2, the actions of the user and facilitator are represented in six steps. In step S1, the user applies the data capture unit to some pre-existing data to capture that data. The captured data must identify the desired goods or services. The data capture device is not limited to capturing data about a single transaction and thus step S2 allows the data capture operation to be repeated with other pre-existing data at the user's discretion. Assuming that step S1 is repeated a sufficient number of times to satisfy the user's desire, the next step S3 is to join or couple the data capture unit to a selected interface. In particular, data captured by the user must be manifested to an entity which can act on the transaction request. That entity

requires data in addition to that captured by the user. Typically the additional data will include information about the user such as name, address, bank account and/or credit card information and the like. As will be described, this information is not contained in a data capture unit and thus will be obtained elsewhere. In addition to the ability of the data capture unit to capture pre-existing data, the data capture unit 100 also includes the ability to transfer that information to a selected interface such as the data forwarding element or network access device or docking station 200. Fig. 1 shows a typical data capture unit 100 docked in a docking station 200. The interface between the data capture unit 100 and the docking station 200 may use any conventional technology. For example that interface may be optical or electrical. The docking station 200 is connected via a communication link 15 to the facilitator 20. The communication link 15 at the docking station 200 can transmit information derived from the data capture unit 100 to the facilitator 20. The communication link 15 may be the public switched telephone network or the like. If desired, the link 15 may be an IP connection via the PSTN. As shown at step S4, the interface establishes a link to the facilitator 20 which link is used to communicate the captured data. At step S5, the facilitator processes the data. Typically, at least two functions are performed; the first is verifying the authenticity of the data and the second is accessing additional data to combine with the transmitted data. In one example, the data capture unit 100 will store identity information which identifies the particular data capture unit 100. This identity information is transmitted to the facilitator 20 along with the captured data and is used at the facilitator in an authenticity or verification step. The same identity information, after the authenticity or verification step is satisfied, can be used to access the additional information which will be combined with the captured data. Once the additional data is accessed and combined with the captured data, the combined information is transmitted to the fulfiller entity in step S6. As seen in Fig. 1, this process occurs over the communication link 25. Communication link 25 may be the same as or different from the communication link 15 and may for example include the

Worldwide Web, or secure Internet connections with end-to-end encryption. The fulfiller entity 30 accepts the combined information and then executes the transaction which is defined by that information.

Fig. 3 is a side view of the data capture unit 100 and a block diagram of its components.

Referring first to the side view of the data capture unit 100, Fig. 3 shows that it is in pen form having a body 190 and a clip 191. Outwardly data capture unit 100 includes interfaces comprising electrical contacts 160 and a bar code scanner 110, status revealing LEDs 123 and an on-off switch 181. Also shown in Fig. 3 is a power source comprising batteries 180, memory including read only memory 170 and buffer memory 140, a microprocessor 120, a scan cancellation button 150 and a real time clock 145.

The real time clock 145 is, in reality, merely a counter, however a counter with sufficient capacity, given reasonable resolution, to count for a time approaching the lifetime of the batteries 180 or much longer than the expected period between instances in which the data capture unit interacts with the facilitator 20. The counter in clock 145 will of course begin counting as soon as it is powered. Each time data is stored in the buffer RAM 140, the data will come in part from the data scanner 110 and also in part from the count in the clock 145. The first time that this particular data capture unit interacts with the facilitator 20, it will transmit its ESN, the stored data (which includes the count in the clock 145 at the time of scanning) as well as the count in the clock 145 at the time of data transmission. Because the counter in clock 145 counts at a constant rate, data processing at the facilitator 20 enables any given count to be translated to time of scanning, where time of scanning implies not only time of day but day of the month and year as well.

As illustrated in Fig. 3, the data capture unit 100 can collect data from different pre-existing sources such as bar coded data found in various forms of print media or the like. As is conventional, the scanner includes a light source such as an LED for generating light, a lens for focusing this light on the printed material and for collected reflected light and covers for shielding the device from dust and humidity, a photoreceptor for reading the reflected light and an analog to digital converter and associated electronics. In use, the operator holds the data capture unit 100 like a pen and sweeps the tip of the unit across bar coded data. The variations in reflected light intensity are converted to an electric signal by the photoreceptors; this scanned data is converted from analog to digital form and input to the microprocessor 120 (or another form of computer such as a custom logic array) to identify whether the scan belongs to a standard set of scan formats and to generate an indication of whether a successful scan has been achieved. This indication may be visible (generated by the illumination of one of several LEDs 123) or audible (generated by an internal speaker). A signal indicating a bad scan could also be generated and indicated by illuminating another LED or using a different audible tone or the like. In other embodiments, the absence of a signal for a successful scan is taken as an indication of an unsuccessful scan. The microprocessor 120 executes algorithms to enhance the detection of the bar code indicia as is also well known. On successful processing, the data obtained in the scan is stored in the buffer RAM 140 which can comprise flash RAM chips or other types of RAM. The microprocessor 120 keeps an account of the level of utilization of the memory 140 and provides signals to the user when the memory is full or approaching full. If desired, the microprocessor 120 can also allow the user to edit or control the data in memory using the scan cancellation button 150 to selectively delete scanned data. Each depression of the cancellation button is effective to delete the data corresponding to a single transaction, i.e., scan data plus the corresponding clock data. The captured data, at a minimum, identifies the subject of a purchase desired by the user. Depending on the context, the requirements for this



identification will require more or less information. For example, if the data may be captured from a wide variety of sources of pre-existing data, the information required to identify and distinguish one item from all other potential purchases in this universe may be extensive. On the other hand, the data may be scanned from a single publication of controlled content so that only a few bits are required to uniquely identify the subject. Regardless of context, it is necessary that the captured data identifies the subject of the desired transaction.

Other embodiments of the invention can capture data from different data formats such as magnetic ink, radio frequency transmissions such as FM radio and television broadcasts. The real time clock 145 allows the time of scanning to be captured along with the scanned data.

In order to make the scanned data useful, it must be transmitted to the facilitator 20 for data processing. To this end, the invention also includes a data forwarding unit or network access device such as the docking unit 200. The two important components of the docking unit 200 are first an interface to accept data from the data capture unit 100 and another interface to transmit that data to the facilitator 20. As will be described, while the particular data capture unit 100 used by a particular individual may be unique, the data forwarding unit which is used can be any available data forwarding unit.

The housing 290 of the Data forwarding Unit 200 is of suitable shape and size for stable and unobtrusive placement on a flat surface, and attractive to view, e.g., in the shape of a pyramid. The housing has suitable ports 235 for connections required by the communication functions. This can implement network connections via the dial up network either directly or via an Internet Service Provider. The docking slots 220 is provided with features that aid the mating process, and ensure that the data capture unit is naturally placed in a manner designed to ensure proper

contact with the data port 160, and effective to transfer data. Feedback to the user regarding the status of the transfer of data from the Data Capture Unit 100 to the Data forwarding Unit 200, and from the Data forwarding Unit 200 to the Facilitator 20 is provided by LEDs 250. Feedback to the user can also be provided by an alphanumeric display 260 placed on the surface of the housing 290 capable of displaying several characters and pictures. Optionally, the alphanumeric display could also function as a display for displaying information obtained from the Facilitator.

Electrical power is provided to the Data forwarding Unit 200 by a battery, solar cells, telephone company lines, or a power supply 240 connected to a standard wall outlet.

The main components of the data forwarding unit 200 are a first interface with the data capture unit 100, the function of which is to acquire data from the data capture unit 100, and a second interface with a communication link to transfer the data received from the data capture unit 100 to the facilitator 20. As will be described, the interface between the data forwarding unit 200 and the data capture unit 100 can employ any conventional technology; two which are convenient are electrical and/or optical interfaces. Preferably the communication link is via the Internet and/or the public switched telephone network and the data forwarding unit 200 can be electrically connected thereto. Those skilled in the art will understand, however, that it is also possible to use a wireless link between the data forwarding unit 200 and portions of the public switched telephone network.

Fig. 4 is a block diagram of one embodiment of a data forwarding unit 200. In one embodiment, the housing of the data forwarding unit 200 or docking base unit comprises one or more electrical connectors 220 to which mating connectors 120 on the data capture unit 100 can be connected or docked. This electrical

connection can establish connection between contacts 222 of the power supply 240 and the batteries 180 of the data capture unit 100 in order to recharge these batteries given sufficient docking time. The docking operation also establishes electrical contact between the transmission port contacts 160 of the data capture unit 100 and an input port 224 of the data forwarding unit 200 to initiate a data transfer operation between the transmission port connectors 160 and the input port connectors 224. Alternatively, those skilled in the art will realize that data can be transmitted optically from the data capture unit 100 to the data forwarding unit 200. In this case, a photoreceptor 223 of docking unit 200 is used to produce signals in response to optical modulation of the photodiode in the data capture unit 100. In operation, the data forwarding unit 200 is normally quiescent. When a data capture unit 100 is inserted into the receptacle 223, the electrical coupling between contacts 160 and 224 signals the presence of the data capture unit 100 to the docking unit. This signal enables a handshaking process whereby the captured data (identifying the subject of the purchase), identification data (or ESN) and time data (identifying the time of scanning) are transferred from the data capture unit 100 to the data forwarding unit 200.

The process of transferring the data from the data capture unit to the facilitator 20 requires two transfer steps. In a first transfer step, the captured data, ID data and real time data stored in the memory of the data capture unit 100, are transferred from the transmission port connector 160 of the data capture unit to the input port 224 of the data forwarding unit. This data transfer is controlled by the microprocessor 120 of the data capture unit and a microprocessor 270 of the data forwarding unit. The data is placed into the RAM 275 of the data forwarding unit.

Fig. 5 is an example of the data contents which may be transferred in a typical operation from a data capture unit to a data forwarding unit. As shown in Fig. 5, the transferred data represents three data groups 501-503. Data group 501

is referred to as an Electronic Serial Number (ESN) or ID. This information identifies the data capture unit which is being employed. Typically, as will be described, the facilitator unit 20 will, in an initialization operation, associate additional data with the ESN so that on receipt of the ESN, that additional data can be accessed. Following the block 501 is a block 502 which, as shown in Fig. 5, is a composite of a product ID 513 and a scan time 514. Fig. 5 also shows that a single data transfer operation may transfer more than a single scan block; Fig. 5 shows a block 503 as well as a block 502.

As will be described, the second data transfer operation takes place after the data forwarding unit establishes a link to the facilitator 20 through the communication link 15. The facilitator 20 is sometimes referred to as a remote transaction center or a processing center. The communication link 115 may be connected on the one hand to the modem 230 via the communication port 235 and use the public switched telephone network to access a modem pool in the facilitator 20. In this second transfer operation the captured data (identifying the subject of the purchase), identification data (or ESN) and time data (identifying the time of scanning) are transferred from the data forwarding unit 200 to the facilitator 20.

The two data transfers can occur sequentially or simultaneously. If the transfers are sequential, the first step transfers all the pertinent data (ESN, time data, captured data) first to the data forwarding unit where it is stored in RAM. After the session with the facilitator (which may be initiated before or after the first transfer step) comes up, the data is again transferred in the second step. The second step itself can also be a one or two step operation. In a two step operation, only the ESN is initially transferred and, only if acknowledged by the facilitator is the second step implemented. On the other hand, in simultaneous data transfer operation, the data forwarding unit initiates a session with the facilitator when the presence of the data capture unit is recognized. Once the session is up, the data is

transferred from data capture unit through the data forwarding unit to the facilitator in a one or two step operation. In a two step operation, only the ESN is initially transferred and only if acknowledged by the facilitator is the second step implemented.

5           The facilitator 20 or processing center includes a modem pool 21, a server 22 and a router 23, as seen in Fig. 1.

10           Fig. 6 is similar to Fig. 1 except that it illustrates details of a different embodiment. As seen in Fig. 6, a typical data capture unit 10 is associated with a typical docking station 200 and thereby connected to a particular communication link 15 comprising the public switched telephone network. Likewise, Fig. 6 shows that the second communication link 25 comprises the Internet which is connected on the one hand via telephone line 25A to facilitator 20A and also connected to one or more merchants (fulfilling entities).

15           Fig. 6 is particularly directed, however, at the make up of the facilitator. One of the telephone lines 15B is dedicated to voice access and so is connected to a VRU 320 which has access to the data base 345 as will be described. The VRU allows for maintenance of the data base as is conventional. A user may call in on the telephone line 15B to provide updates and changes as necessary. This is useful if the user wants to change a shipping address or other data. Once connected, and  
20           after passing authenticity tests (such as by the use of passwords and the like) the user may input updated data. In addition, the user may report lost or stolen data capture units. In the latter case, the data base is updated so as to prevent acceptance by the system of any further data from the lost or stolen data capture unit.

On the input side is a telephone line 15A (for example a T1 line) and the modem pool 21 which in this embodiment is a Lucent Portmaster 3. On the output side is the router 23, in this embodiment a Cisco 2524. The output of the modem pool 21 and the input of the router 23 are connected to a hub 301. The hub 301 is also connected to a firewall 302, for example PC/NT with Raptor Eagle software. The firewall 302 provides protection for the firewall protected area 300. A hub 302 is also connected to the hub 301 in order to distribute Internet access for those at the remote processing center 20A.

Within the firewall protected area 300 lies a data base, Web server and data translation module as well as the VRU 320. In particular, the data base includes the TPM primary 340 (in this case a Sun Ultra platform with an Oracle engine), a TPM secondary 345 (of similar make up), the Web server 22 (also a Sun Ultra) and a data translation module 325, in this case a PC Redhat Linux. Each of the primary and secondary data bases, Web server and DTM is connected to a hub 310 which in turn is connected to the firewall 302. The VRU 320 is also connected to the TPM secondary 345.

As has been noted, the user has feedback available via indicators on the data forwarding unit, such as the LED 250. One level of feedback is merely the generation of a session between the data forwarding unit 200 and the facilitator 20. The generation of such a session is indicated by the change in status of a particular LED (a change in status may be any one of: change from energized to not energized, change from continuous energization to discontinuous energization or vice versa). There are several other levels of feedback that are useful. One other level is an indication that the facilitator 20 has accepted the data as coming from an authorized data capture unit 100. This level of feedback is also available in a similar fashion from the same or different LED on the data forwarding unit. A further level of feedback is the acceptance of the transaction by the facilitator.

While this may also be signalled by a similar change in status of one or another LED, it is sometimes more desirable to obtain a more permanent record, such as a receipt. This is also available with the addition of a small printer to the data forwarding unit. The printer may be integrated into the data forwarding unit or, preferably, it is an attachment which can be effected by a user.

The facilitator has several functions. These include:

a) Once the communication is initiated by the Data forwarding unit, a front end device at the facilitator establishes a secure IP communication to the Data forwarding unit.

b) Once the physical communication is established, the Data forwarding unit then interacts with the Data Translation Module (DTM). The DTM, based on receipt of the ESN checks for authentication of the data capture unit 100 to make sure that it is a valid and authorized device. This check relies on the DTM data base. The DTM data base has a record for each data capture unit, i.e., for each ESN. The record identifies if the unit has been assigned to a user. If it has, the record points to the location in the data base for the user. This data base has the additional user information with which to complete transactions, i.e., name, shipping address, credit card identification, etc. If the unit has not been assigned to a user, the DTM stores this status; generally a unit which has not been assigned will not be verified or authorized to initiate transactions. Even after a unit has been assigned, it may be reported lost or stolen. This information is also added to the data base and is another reason that the unit will not be verified or authorized.

c) After successful authentication, the transaction information is transmitted by the docking unit or data forwarding unit to the DTM, where the data gets parsed and sorted out.

d) The DTM also sends the necessary information to the Data forwarding unit 200 to provide audio/LED indication to user to indicate successful data transmission or an alert signal to call the customer care, if the transmission is not successful.

5 e) Once this handshake is completed, the connection between the Data forwarding unit and the DTM is removed and the physical network connection is taken down.

10 f) The DTM then delivers the consumer transaction data to the database system, where the data gets analyzed, combined with user information such as address, credit card information, bank payment information, call back information, coupon information etc. as appropriate.

g) The access to the database system is done via secure means by going through internet firewalls and other security mechanisms to protect the consumer information.

15 h) The database server then delivers the consolidated information to the appropriate merchants or fulfillment party.

20 i) The facilitator may also have another internet web based module which communicates with the merchants interactively to collect the merchant profile and deliver the appropriate digital code information to be printed on the catalogs or other print media.

j) The facilitator communicates with the merchant back-end systems for delivering the transaction information via the internet or other appropriate communication system.



The modem pool 21 allows the data transmitted by the data forwarding unit to be received. The received data is forwarded to the server 22 where it is processed, i.e. as will be described, a verification/authentication step is performed and, for the data which passes that test, additional data is added and then forwarded to the router 23 where it will be forwarded on to a fulfiller 30 using a communication link 25. The communication link 25 may or may not be different from the communication link 15 and may for example include the Internet and particularly a secure link over the Internet. The data transmitted from the facilitator 20 will completely define a particular transaction and the fulfiller 30 is the party who will execute the transaction.

The transactions which can be implemented with the system and method of the invention include purchases (of goods or services), bill payment, information requests, call back requests, URL requests, coupon management, consumer polling as will now be described.

#### Purchase Transaction

The purchase transaction can involve the purchase of any goods or services from a party which may be the manufacturer, distributor or retailer. The selling party will be referred to here as the vendor. As has been noted, the user identifies the subject of a purchase by capturing pre-existing data. In order to effect this, the vendor must arrange for the creation and distribution of this pre-existing data in the form of print media or the like. In preferred embodiments, the data will be in the form of one or more bar codes in some form of print media. The bar codes should be capable of distinguishing each potential product or service which is offered for sale as well as the vendor or party who will fulfill the transaction (fulfillment party).

Also prior to initiating a transaction, the intermediary or facilitator 20 or processing center has, in an initialization process, obtained the file of data for each data capture unit 100. The file of data includes, at a minimum, the information which must be added to the information that will be received from the data forwarding unit in order to completely define a desired transaction. At the minimum, that additional data must include:

name,  
shipping address,  
billing information.

Given the existence of one or more data capture units 100 in the possession of different users, suitable established facilitator 20 and fulfillment center 30, a typical purchase transaction is implemented in accordance with the invention as follows.

A user, upon recognizing an offering of a product or service in a suitable media, will scan the bar code or codes using the user's data capture unit 100. In addition to a bar code uniquely identifying the desired product(s) or service(s), the user may also scan additional bar codes depending on other variables/parameters for the transaction. This might include, indication of a purchase (as opposed to other potential actions), desired shipping mode, etc. The additional bar codes may be included with the media including the desired product or service or appear in separate media dedicated to that purpose. At a convenient time, such as when the user has completed perusing the particular media on which one or more offerings for products or services has been recognized, that data capture unit 100 which is now charged with data representative of those desired products or services is then deposited into an available data forwarding unit 200 or docking device. The data forwarding unit 200 may be used only by the particular user, it may be a publicly

available data forwarding unit, or it may be mainly used by one user but casually used by others. The data forwarding unit establishes the network connection to the facilitator 20 and the stored data representing the desired products or services along with real time data identifying the data capture instant for each of the data capture operations as well as the ESN identifying the data capture unit which has been employed is transferred. When the data is received at the facilitator 20, the two steps, validation and/or authentication and processing, are implemented. Validation and/or authentication depends upon the ESN and once validated or authenticated the ESN is used to access the data which will be added to the data forwarded by the forwarding unit. The combination of data forwarded by the forwarding unit and the added data then creates the data necessary to define a particular transaction.

The facilitator 20 may consolidate the information representing this particular transaction or transactions with others and then deliver the information to the fulfilling party. In some examples, the fulfilling party may act for all vendors, or a group of vendors, or only a single vendor. The communication channel which links the facilitator and fulfilling party is a secure channel to protect sensitive information that is being transmitted.

Once the fulfilling party receives information necessary to define a transaction, that transaction is implemented, i.e. the particular goods or services are delivered to the user and payment steps are taken to compensate the fulfilling party or its principal for the transaction.

#### Bill Payment

The bill payment transaction has many similarities. In this case, however, the user is already indebted to a merchant for some goods or services for which the merchant has transmitted to the user a bill. In order to implement the present

invention, the bill will carry indicia such as a bar code which can be captured by the data capture unit 100. The bar code is not necessarily limited to the amount of the indebtedness; it may also be some lesser included amount. When the user receives the bill, if there is a desire to implement the invention for payment purposes, the user captures the data from the bill to represent the desired transaction, either complete payment or partial payment. The user then docks the data capture unit 100 with the data forwarding unit 200 in a manner already described. For bill paying purposes, the data base of the facilitator will carry, in a file identified by the ESN of the data capture unit, information representing a preferred bill payment mechanism. Thus, when the facilitator 20 receives the particular captured data, the combination of the captured data (representing the bill paying transaction) and the ESN (representing the user) will allow compilation of information which will completely identify the desired transaction. In this case, the fulfilling party 30 will be a party capable of fulfilling a bill payment request.

#### Information Requests

Other than purchases and bill payments, the system and method of the invention can be used for implementing information requests. In this case, when the user captures pre-existing data representing a request for information, the captured data will identify the subject of that request for information and in addition, perhaps the delivery medium in which the requested information is desired. The medium, for example, could represent print media delivered by regular mail or e-mail, or perhaps the transmission of information to the user by telephone, i.e. a call-back. In any event, the data capture from pre-existing media, concatenation of that captured data with the ESN identifying the user, and transmission of that to the facilitator 20 has already been described in connection with other transactions. In this case, the facilitator data base will include, in connection with the ESN, information representing the desired path for the

requested information such as street address for regular mail, e-mail address for e-mail transactions, telephone or facsimile number for the call-back. Either the facilitator data base or the scanned data may also indicate the preferred or default time for the requested call back.

5           The requested information may be a Universal Resource Locator (URL) so that the user may access the vendor's web page in order to acquire still more information.

#### Electronic Coupon Management (ECM)

10           Coupons detailing discounts, rebates, gifts and other customer benefits are encoded and generated as bar codes. Coupons are maintained, i.e. stored, at the facilitator 20 as rules and are executed while processing purchase and other transactions which allow use of coupons. Region of validity of coupons is maintained as a separate entity as this requires multiple records for a particular rule/coupon identifier.

15           Based on transaction history, merchants could decide to issue coupons to specific subscribers. These coupons will be maintained at the user level, i.e., specific to individuals as opposed to more general applicability for other coupons. Those specific coupons may be re-distributed or made available among all subscribers with proper assent from the issuing merchants.

20           A coupon when scanned by a user is sent in as a transaction type of ECM. It is understood that when a coupon is scanned and transmitted to the facilitator 20, it is the user's intent to use the coupon in the transactions which could take advantage of the coupon. In other words, if a coupon has been stored at the facilitator 20 and the user does not want to use the stored coupon, then the user would have to inform

facilitator before the transactions are transmitted to the merchants. To enable such a function, the system maintains a Use/Don't Use flag against the coupons set to the default value of Use.

5 Transactions are processed after receiving all data from the user and confirming validity of the transactions. This statement emphasizes the fact that there is staging of data in the tables before being converted into detail transactions for merchants. This is important because, for a purchase transaction to take advantage of a coupon, the corresponding ECM transaction must be present in the system. If transactions are processed in a streaming mode, a purchase transaction with an associated ECM  
10 transaction would not be able to take advantage of the coupon, if the purchase transaction was transmitted prior to ECM.

ECM transactions are associated with rules built in the system. The rules detail the discounts, incentives, rebates and other user beneficial items associated with coupons.

#### 15 Electronic Consumer Polling (ECP)

This is very similar to a purchase transaction in that users use the data capture unit to store their preferences to choices expressed in a questionnaire. In addition, instead of delivering information to the merchant (as is the case in a purchase transaction), the consumer polling data is collected at the facilitator 20 for further data analysis. The polling choices are printed on paper media with each having its own unique digital code, allowing consumers to make easy choices.

#### Electronic Return Merchandise Management (ERMM)

This allows both users as well as merchants to simplify the entire return merchandise process. The concept works as follows. When the merchant ships an item to a user (whether the item purchased with or without the invention), a special "return merchandise form" is included in the package with a specially coded digital barcode information. If the user decides to return the shipped item, he/she simply scans the specially coded information and deposits the charged data capture unit 100 into an available data forwarding unit 200. Upon receipt of the stored information at the facilitator, the facilitator will translate that request and redirect that request to the appropriate shipping/delivery company along with the consumer address and other preferences (such as best time to pick up etc., ). The shipping/delivery company then dispatches the truck driver to the consumer address for picking up the package. In addition, the return request information will also be communicated to the appropriate merchant to complete the process.

#### Metered Ads (MADS)

In today's mode of paper based advertisement, there is no easy and direct way of measuring the effectiveness of any specific ad. It is very difficult to track exactly which ad generated how many requests and how many subsequent sales resulted from that ad. With the Metered Ad, each ad is metered using the associated barcode information. When the consumer sees an ad, and decides to either purchase the item or request for information/call-back, he/she scans the barcode and that the usage information will be collected by the facilitator and the data can be analyzed to capture the exact response to the specific ad. In order to implement this function the scanned and captured data necessarily includes information respecting the specific ad being responded to in addition to the identity of the desired good/service.

While specific and preferred embodiments of the invention have been described, those particular features and details should not be construed as limiting. Rather, the metes and bounds of the invention should be construed in accordance with the claims attached hereto.



## CLAIMS

What is claimed is:

1           1.     A system to provide combined transaction information from a user  
2     and a facilitator comprising:

3                 portable data capture means to capture user selected data defining a  
4     particular transaction,

5                 data forwarding means responsive to the data capture means for acquiring  
6     data from the data capture means and for forwarding the acquired data, and

7                 facilitator means responsive to the forwarded data for associating prestored  
8     data with the forwarded data to create the combined transaction information.

1           2.     The system of claim 1 wherein the portable data capture means includes a  
2     bar code scanner.

1           3.     The system of claim 1 or claim 2 wherein the portable data capture means  
2     includes

3                 a counter, and

4                 storage for first, second and third information groups,  
5     the first information group for storing data captured by the data capture means, the  
6     second information group for storing counter information and the third information  
7     group for storing identification information identifying the particular data capture  
8     means.

1           4.     The system of claim 3 wherein the data forwarding means includes a dial  
2     up modem which transmits data in IP format.

1           5. The system of claim 3 wherein the data forwarding means includes a dial  
2 up modem which transmits data in circuit switched format.

1           6. The system of claim 3 in which the data forwarding means forwards  
2 information from the first, second and third information groups.

1           7. The system of claim 6 wherein the facilitator means effects a data  
2 validation operation based on the information identifying the particular data capture  
3 means before creating the combined transaction information.

1           8. The system of claim 6 wherein the facilitator means combines data from  
2 at least one of the first and second information groups with additional data selected  
3 based on the third information group.

1           9. The system of claim 3 where the transaction is a purchase transaction and  
2 the selected data identifies the subject of the purchase.

1           10. The system of claim 3 where the transaction is a payment transaction and  
2 the selected data identifies the subject of the payment.

1           11. The system of claim 3 where the transaction is an information request  
2 and the selected data identifies the subject of the information request.

1           12. The system of claim 1 wherein the data capture means includes means  
2 responsive to acknowledgment information and wherein the facilitator means  
3 includes transmission means to transmit acknowledgment information.

1           13. The system of claim 12 wherein the means responsive to  
2 acknowledgment information generates a visually perceptible indication.

1           14. The system of claim 12 wherein the means responsive to  
2 acknowledgment information generates an audible indication.

1           15. The system of claim 1 in which the facilitator means includes means for  
2 selectably formatting the combined transaction information.

1           16. The system of claim 1 wherein the data capture means includes user  
2 operated means for editing stored data.

1           17. A system to facilitate a transaction involving a user, a facilitator and a  
2 fulfiller comprising:  
3           portable data capture means to capture user selected data defining a  
4 particular transaction,  
5           data forwarding means responsive to the data capture means for acquiring  
6 data from the data capture means and for forwarding the acquired data,  
7           facilitator means responsive to the forwarded data for associating prestored  
8 data with the forwarded data and for further forwarding the combined forwarded  
9 and prestored data to a fulfiller, and  
10          fulfiller means responsive to the combined data for completing a transaction.

1           18. The system of claim 17 wherein the portable data capture means includes  
2 a bar code scanner.

1           19. The system of claim 17 or claim 18 wherein the portable data capture  
2 means includes  
3           a counter, and  
4           storage for first, second and third information groups, the first information  
5 group for storing data captured by the data capture means, the second information

6 group for storing counter information and the third information group for storing  
7 identification information identifying the particular data capture means.

1 20. The system of claim 19 wherein the data forwarding means includes a  
2 dial up modem which transmits data in IP format.

1 21. The system of claim 19 wherein the data forwarding means includes a  
2 dial up modem which transmits data in circuit switched format.

1 22. The system of claim 18 in which the data forwarding means forwards  
2 information from the first, second and third information groups.

1 23. The system of claim 22 wherein the facilitator means effects a data  
2 validation operation based on the information identifying the particular data capture  
3 means before creating the combined transaction information.

1 24. The system of claim 23 wherein the facilitator means combines data  
2 from at least one of the first and second information groups with additional data  
3 selected based on the third information group.

1 25. The system of claim 17 where the transaction is a purchase transaction  
2 and the selected data identifies the subject of the purchase.

1 26. The system of claim 17 where the transaction is a payment transaction  
2 and the selected data identifies the subject of the payment.

1 27. The system of claim 17 where the transaction is an information request  
2 and the selected data identifies the subject of the information request.

1           28. The system of claim 17 wherein the data capture means includes means  
2 responsive to acknowledgment information and wherein the facilitator means  
3 includes transmission means to transmit acknowledgment information.

1           29. The system of claim 28 wherein the means responsive to  
2 acknowledgment information generates a visually perceptible indication.

1           30. The system of claim 28 wherein the means responsive to  
2 acknowledgment information generates an audible indication.

1           31. The system of claim 17 in which the facilitator means includes means for  
2 selectably formatting the combined transaction information.

1           32. The system of claim 17 wherein the data capture means includes user  
2 operated means for editing of stored data.

1           33. A method to facilitate a transaction involving a user, a facilitator and a  
2 fulfiller comprising:  
3           capturing user selected data defining a particular transaction,  
4           forwarding the user selected data,  
5           associating prestored data with the forwarded data and further forwarding the  
6 combined forwarded and prestored data, and  
7           completing a transaction in response to receipt of the combined forwarded  
8 and prestored data.

1           34. The method of claim 33 where the transaction is a purchase transaction  
2 and the selected data identifies the subject of the purchase.

1           35. The method of claim 33 where the transaction is a payment transaction  
2 and the selected data identifies the subject of the payment.

1           36. The method of claim 33 where the transaction is an information request  
2 and the selected data identifies the subject of the information request.

1           37. The method of claim 33 which further includes transmitting  
2 acknowledgment information to the user at the time of the further forwarding.

1           38. The method of claim 37 wherein the acknowledgment information is  
2 visually perceptible.

1           39. The method of claim 37 wherein the acknowledgment information is  
2 audible.

1           40. The method of claim 33 which includes selectably formatting the  
2 combined transaction information.

1           41. The method of claim 33 which includes the step of editing user  
2 selected data before the step of forwarding.

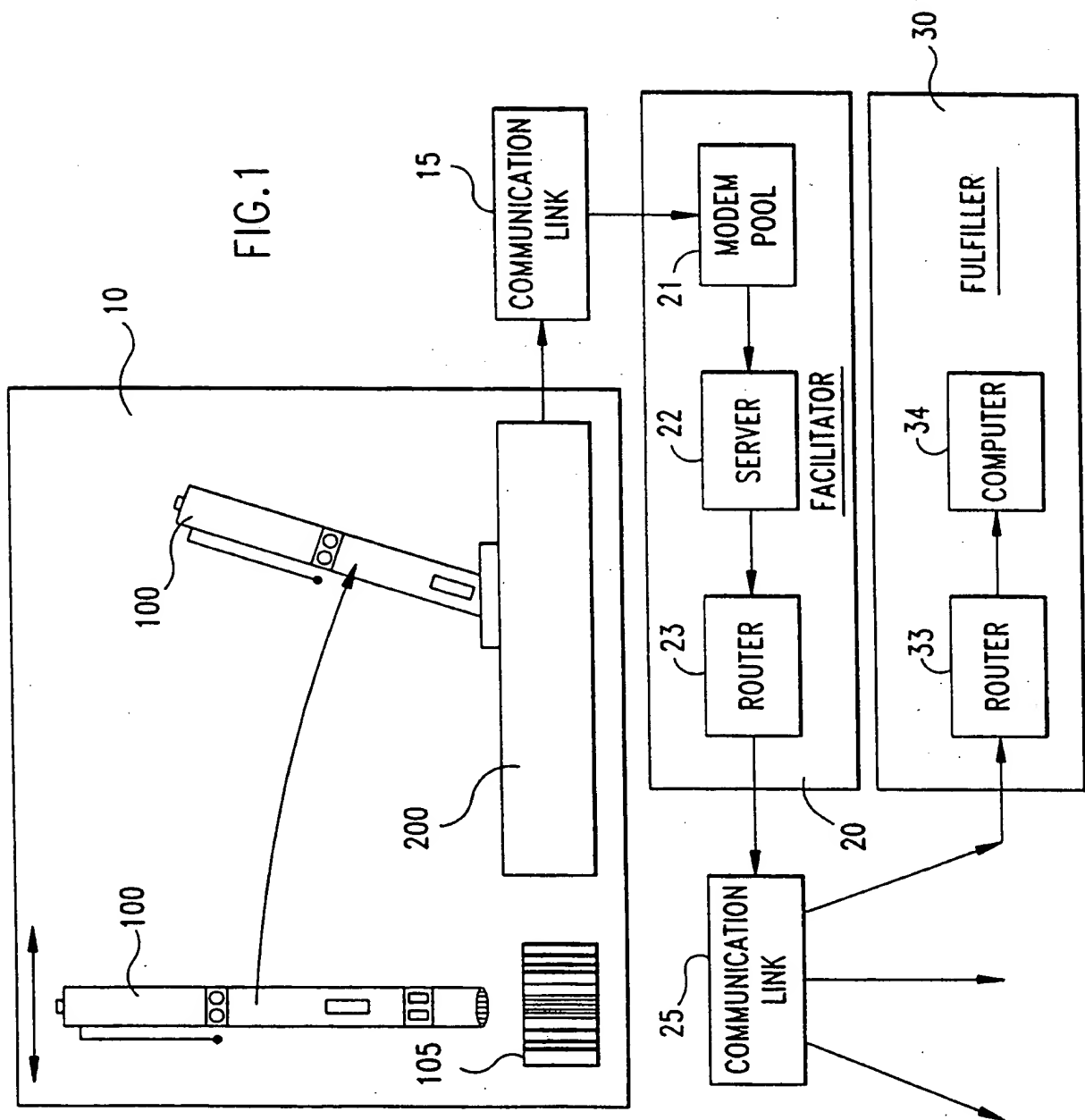


FIG.2

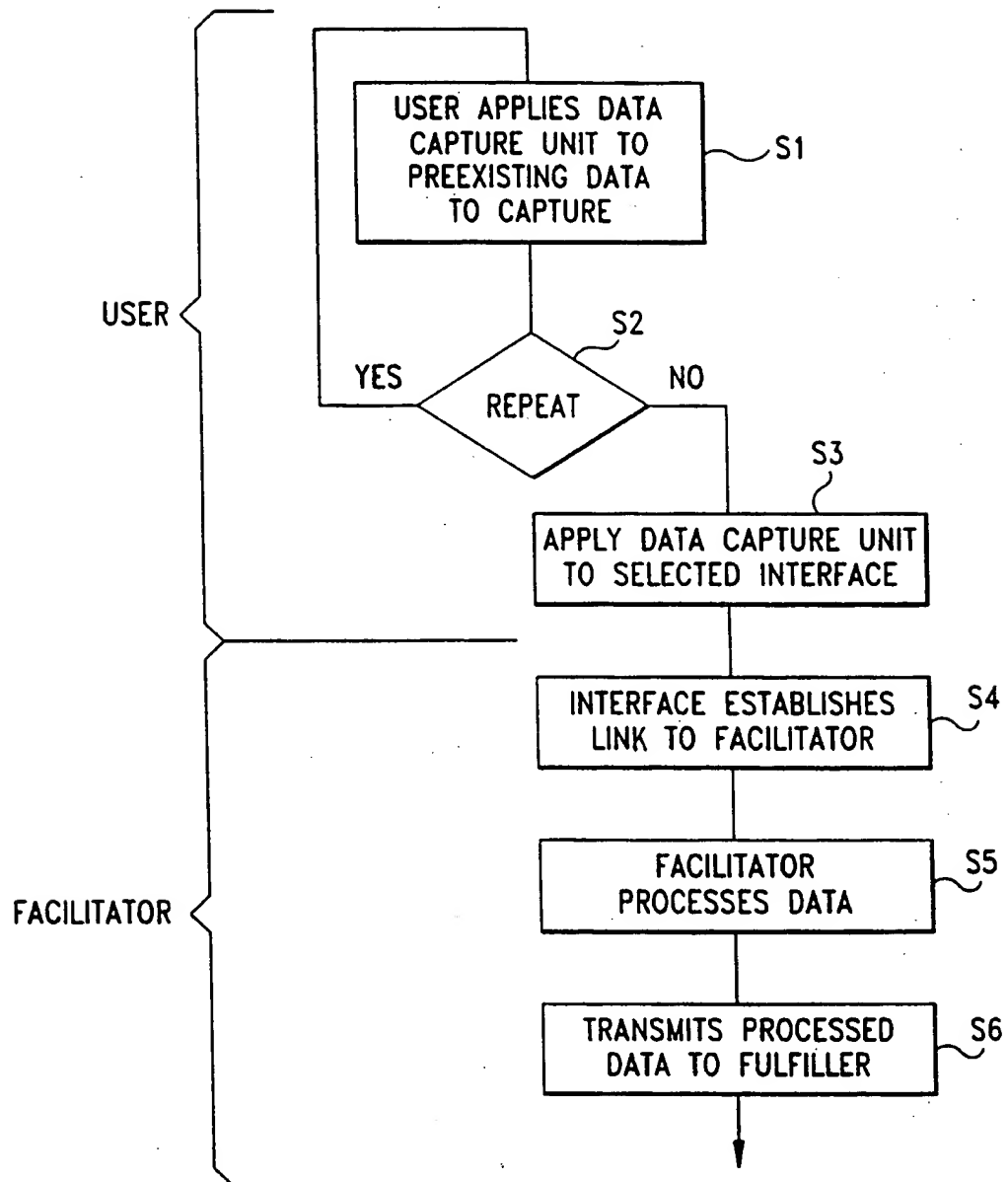




FIG. 3

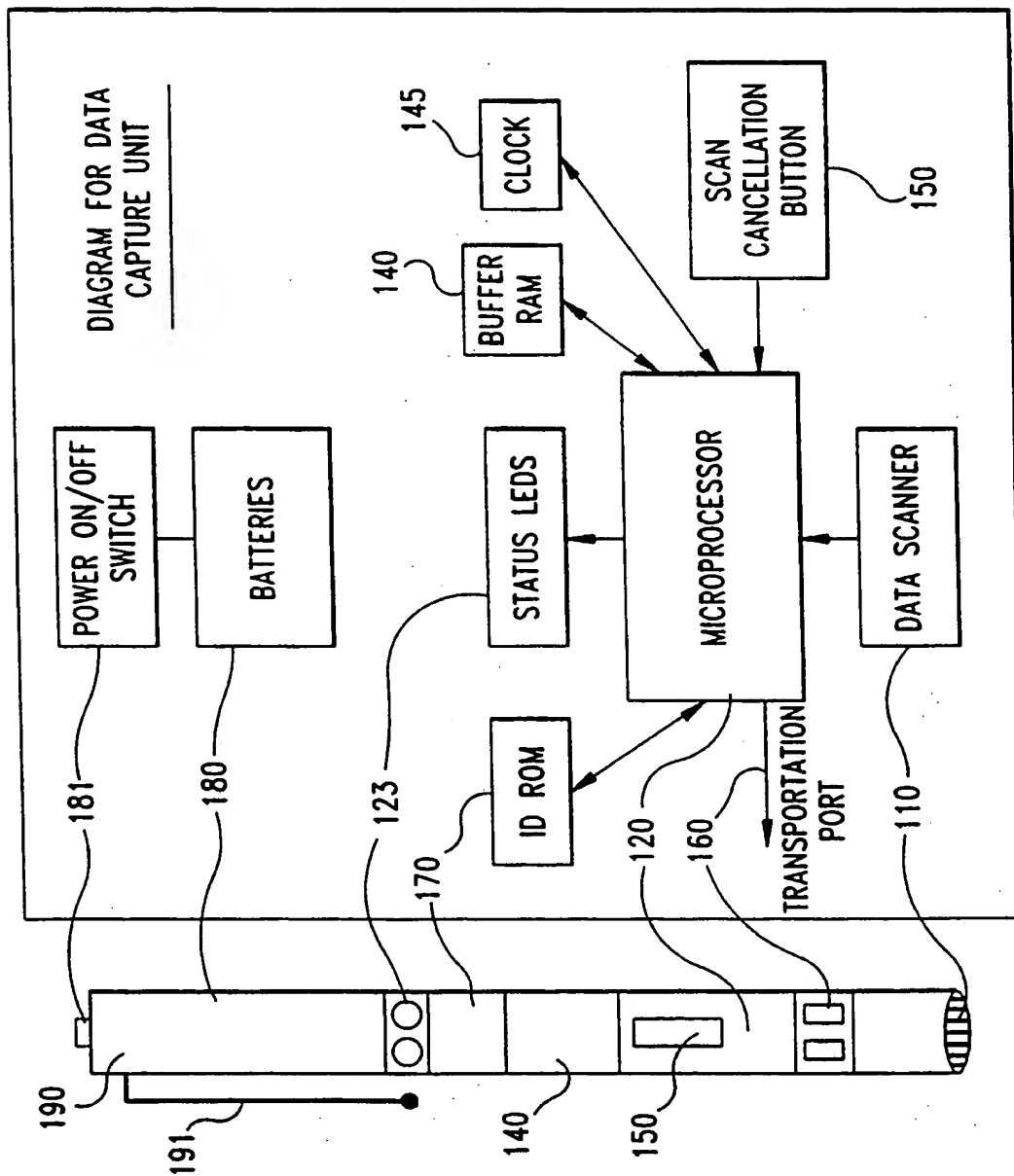


FIG. 4

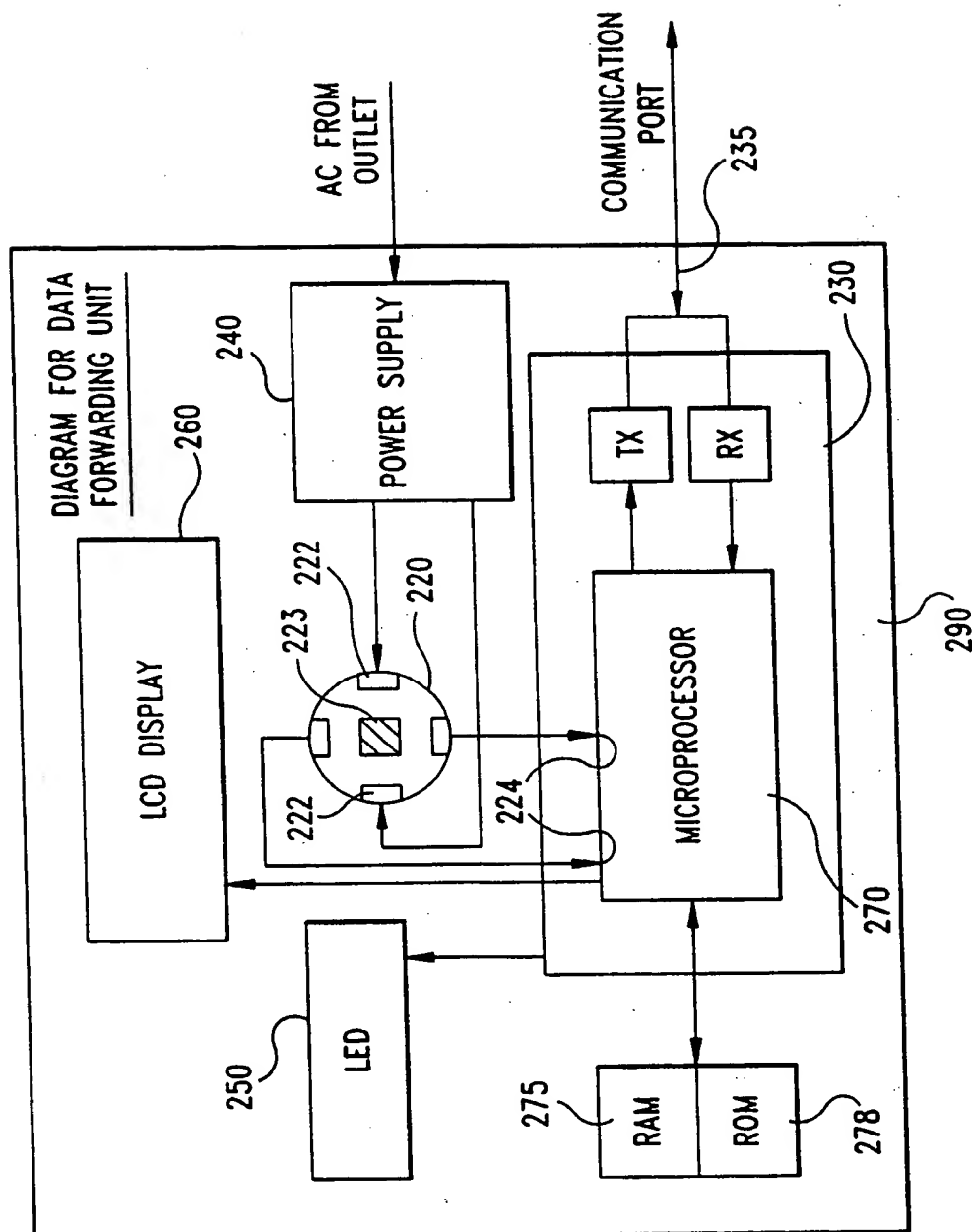
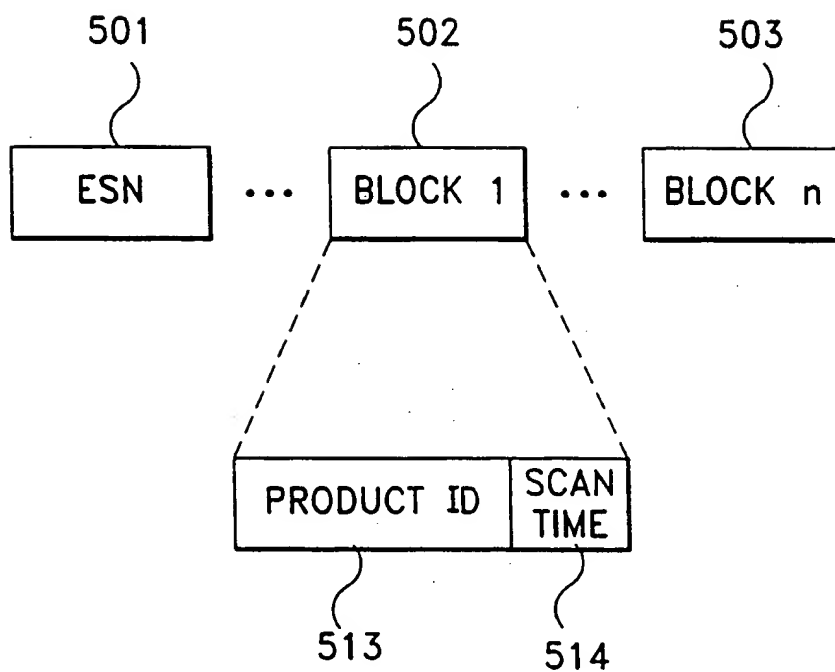
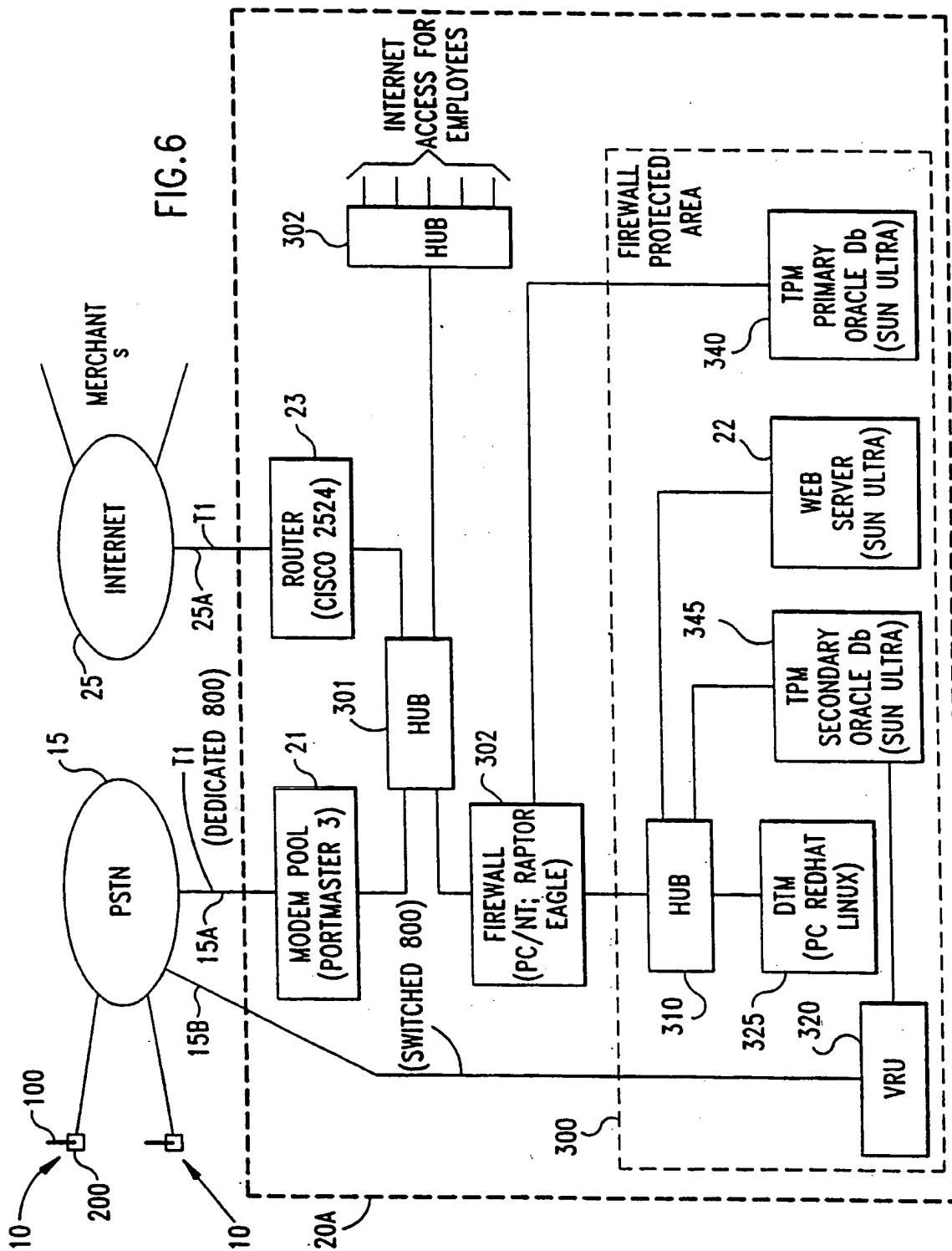


FIG. 5





## INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/18269

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 17/60

US CL :705/26

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 235/ 383, 462; 705/1, 26, 27

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

None

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

None

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 4,625,276 A (BENTON et al) 25 November 1986, see abstract.	1-3, 6-19 & 22-41
Y	US 4,947,028 A (GOROG) 07 August 1990, see abstract.	1-3, 6-19 & 22-41
Y	US 5,465,291 A (BARRUS et al) 07 November 1995, see abstract.	1-3, 6-19 & 22-41
Y	US 5,537,313 A (PIRELLI) 16 July 1996, see abstract.	1-3, 6-19 & 22-41
Y	US 5,640,002 A (RUPPERT et al) 17 June 1997, see abstract.	1-3, 6-19 & 22-41



Further documents are listed in the continuation of Box C.



See patent family annex.

\*

Special categories of cited documents:

\*A\*

document defining the general state of the art which is not considered to be of particular relevance

\*B\*

earlier document published on or after the international filing date

\*L\*

document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

\*O\*

document referring to an oral disclosure, use, exhibition or other means

\*P\*

document published prior to the international filing date but later than the priority date claimed

\*T\*

later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

\*X\*

document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

\*Y\*

document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

\*Z\*

document member of the same patent family

Date of the actual completion of the international search

15 NOVEMBER 1998

Date of mailing of the international search report

14 JAN 1999

Name and mailing address of the ISA/US  
Commissioner of Patents and Trademarks  
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US98/18269

## Box I Observations where certain claims were found unsearchable (Continuation of Item 1 of first sheet)

This international report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
  
2. ☒ Claims Nos.: 4, 5, 20 & 21  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:  
  
Claims 4, 5, 20 & 21 can not be searched since the different types of transmission formats/protocols lack support with in the disclosure.
  
3. ☐ Claims Nos.:  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box II Observations where unity of invention is lacking (Continuation of Item 2 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
  
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.  
☐ No protest accompanied the payment of additional search fees.